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Arboricultural Assessment & Report – Development Impact

104 – 108 Sparks Road Norlane

For: Misk Design

Tuesday 2nd June 2026

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**Arboricultural Assessment and Report
104 - 108 Sparks Road Norlane**

Report By: Graeme Lewis
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Objectives

To assess two street tree located adjacent the subject site that may be affected by a proposed development.

To provide an assessment of the subject trees detailing their age, health, structure, retention value, dimensions, structural root zones and notional root zones.

To assess the potential impact that the proposal may have upon the existing vegetation.

To provide remedial and tree protection information for the retained trees.

Methodology

A site inspection was undertaken on 19.05.2026. The trees were inspected and observations made of the surrounding area. Visual observations were undertaken from ground level to determine age, structure and condition with measurements taken to establish approximate trunk and canopy dimensions. Canopy height and width were measured using trigonometry and a laser device with trunk diameters measured at 1.4m from grade and above the trunk root buttress interface using a forester's diameter tape.

A preliminary design assessment, undertaken on the 19th May 2026, indicated major encroachment to the NRZ of street tree 1 at 13.5%, with the SRZ also encroached. Following arborist advice, the design has been amended to reduce the level of encroachment to the NRZ and to remove any encroachment within the SRZ.

I have been provided with a copy of City of Greater Geelong, Request for Further Information letter dated 13.01.2026.

I have assessed *Proposed Site and Floor Plan - Front*, drawn by Misk Design, undated, received on 01.06.2026.

Tree data can be viewed in Appendix 1.

Tree data descriptors are provided in Appendix 2.

Tree protection measures are provided in Appendix 3.

A copy of the cited plan is included in Appendix 4.

Tree Photographs are provided in Appendix 5.

Observations

The subject site (the site) consists of a General Residential Zone (GRZ 1) allotment in Norlane, a suburb located within the City of Greater Geelong.

The site has been demolished of all past structures and woody vegetation.

Two street trees exist in the Sparks Road nature strip, adjacent the subject site. Both are mature specimens of *Fraxinus angustifolia* 'Raywood' (Claret Ash).

It is proposed to develop the subject site with nineteen townhouses, which will be accessed via a widened existing street crossover.

Council has requested an Arboricultural Impact Assessment that determines how the health and long-term viability of both trees may be affected.

Discussion

Tree Value

Trees can make a positive contribution to the appeal of a completed development by providing a visual softening of the built form, a maturity to the landscape, a connection with the pervading landscape and neighbourhood character, they also provide scale, shade, beauty, habitat and benefits to human health. However not all trees are suitable for retention, particularly within a proposed development.

Tree Retention, Protection and Development

If trees are to be successfully retained within a development site, measures must be taken to ensure adequate retention and protection of the canopy and root mass.

Industry standard AS4970 2025 *Protection of Trees on Development Sites* requires a suitably qualified arborist to identify the tree/s Notional Root Zones (NRZ's) which are a primary trigger for arboricultural input. NRZ's are calculated by multiplying the trunk diameter at 1.4m from grade by twelve, which determines the radius of a circle shown on plan.

An area to protect tree health from construction harm, known as a Tree Protection Zone (TPZ) will be determined by the project arborist after considering the extent of encroachments to the Notional Root Zone.

The Structural Root Zone (SRZ) is a theoretical area of roots and soil that maintains the anchorage of a tree's root mass. The SRZ is calculated using a diameter measurement above the root buttress as its basis – $RSRZ = (D \times 50)^{0.42} \times 0.64$. Similar to the NRZ, the SRZ is also shown on plan as a circle that is measured as a radius from trunk centre.

Where a proposed encroachment to the area of the NRZ is less than or equal to 10% and that zone has not had recent encroachments and is outside the SRZ, the encroachment is considered minor. In general, it is unlikely that tree health, longevity or structure will be materially affected.

To avoid a net loss of soil area and volume, an area equivalent to the encroachment, shall be incorporated into the Tree Protection Zone unless the project arborist otherwise demonstrates that the tree will remain viable.

Where a proposed encroachment is greater than 10% and less than 20% of the NRZ area and outside the SRZ, it is considered moderate. A project arborist shall be engaged to undertake any necessary investigation to address the factors listed in Clause 3.3.2 to demonstrate how the tree will remain viable. This may be through the implementation of suitable design measures and construction controls to mitigate impacts during the development process.

To avoid a net loss of soil area and volume, an area equivalent to the encroachment shall be incorporated into the Tree Protection Zone unless the project arborist otherwise demonstrates that the tree will remain viable.

A major encroachment is considered to be greater than 20% of the NRZ area or inside the SRZ. The project arborist shall be engaged to explore alternative designs with the design team and / or demonstrate that the tree will remain viable. Relevant factors listed in Clause 3.3.2 should also be considered (see below).

Where encroachments are major a more detailed investigation is necessary. This can include root investigation, soil analysis, historical records of the tree or site, relevant literature and examples of similar encroachments.

Under a permit requirement issued by the Responsible Authority, a Tree Protection Schedule (TPS) and Tree Protection Plan (TPP) shall be prepared by the project arborist to support retention of the tree.

The Tree Protection Plan will show the extent of the area to be protected (TPZ), which may also be increased to provide an area equivalent to the proposed encroachment (unless the project arborist otherwise demonstrates that the tree will remain viable).

AS4970 2025 states that the TPZ should be determined using the considerations provided in section 3.3.2 and the extent of TPZ encroachments that may occur as a result of the proposed development.

3.3.2 Considerations in determining the TPZ:

- (a) Location and distribution of the roots
- (b) Potential loss of root mass resulting from the encroachment (number of roots and diameter of roots)
- (c) Tree Species and tolerance to root disturbance
- (d) If the works will result in a temporary (e.g service trench) or permanent (e.g. basement carpark) loss of available soil volume.
- (e) Age, health, current size and projected size of the tree
- (f) Presence of other trees with overlapping NRZ or grafted roots.
- (g) Proposed staging and timing of excavation or root cutting.
- (h) Proposed tree maintenance and tree care activities.
- (i) Lean and stability of the tree.
- (j) Soil characteristics and volume, topography and drainage.
- (k) Presence of existing or past structures, obstacles affecting root growth or recent encroachments.
- (l) Proposed Construction measures that reduce the impact on trees.
- (m) Whether a root investigation is required. The location and distribution of the roots should be determined through minimal destructive investigation methods (pneumatic, hydraulic, had digging or ground penetration radar.) Photographs should be taken and, where needed to address geospatial issues, a root map should be prepared.

Note 1 Construction measures such as pier and beam, suspended slabs, cantilevered building sections and screw piles can reduce the impact of encroachment.

Note 2 Root damage should be minimised during this process. The roots should only be exposed for as long as required to meet the purposes of the investigation.

As the tree canopy may extend beyond the NRZ, the TPZ will also need to accommodate protection of the drip line of that canopy.

Although some trees will not be encroached within the NRZ, they may still require protection from construction impacts.

Tree Protection Measures

Tree health can often be damaged by ancillary construction works, such as fuel or chemical disposal, ground compaction, root damage by machinery, trenching for services etc. To protect tree health, tree protection measures must be installed prior to the commencement of works and maintained throughout the construction phase.

The most common method of tree protection is the erection of temporary barrier fencing, that excludes access within the TPZ.

As construction access is often required to deliver materials and construct the built form, which may require scaffolding, pedestrian, crane, concrete pump, drill rig or boom access, tree protection measures must ensure adequate tree protection whilst also allowing access. Where access is prevented, workers will often remove or move protection fencing to 'open up' the site' and unknowingly make the trees susceptible to construction damage. For this reason, tree protection that also allows for construction access is seen as appropriate.

Where tree protection fencing would unreasonably restrict access, the use of ground protection and trunk padding would provide a practical solution.

Tree protection specifications, including fencing and ground protection can be viewed in Appendix 3 of this report.

Conclusions & Recommendations

Based on AS4970 2025 the following NRZ encroachment assessment is provided:

- The NRZ area of trees 1 & 2 is encroached by a minor amount.
- Zero NRZ's are encroached a moderate amount.
- Zero NRZ's are encroached a major amount.

Regarding a minor encroachment, AS4970 2025 states that generally, it is unlikely that there will be a significant impact to tree health, longevity or structure. Therefore, the health of trees 1 & 2 will not be materially affected by the minor encroachment of 9.9% and 0.2% respectively.

Tree protection measures must be installed prior to the commencement of works. Indicative tree protection measures are provided on plan in Appendix 4.

Tree protection specifications can be viewed in Appendix 3.

The crossover excavation within the NRZ of tree 1 must be attended by a suitably qualified arborist. All severed roots must be pruned, treated and backfilled immediately. No root loss is to occur that would undermine tree health.

Where underground services must be installed within a NRZ, these must be underground bored to a nominal depth of 600mm and under direct arborist supervision.

Regards

Graeme Lewis

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Diploma of Arboriculture (Melbourne University)
Advanced Certificate Arboriculture (VCAH Burnley)
Cert. Tree Surgery (Oakleigh TAFE)
Victorian Tree Industry Organisation - Member
International Society of Arboriculture – Member

References: ASA 4970 2025 *Protection of Trees on Development Sites* (Standards Australia)

Appendix 1

*DESCRIPTORS IN APPENDIX 2

DSH = DIAMETER OF TRUNK AT 1.4M FROM GRADE. NRZ = NOTIONAL ROOT ZONE (MEASURED AS A RADIUS FROM THE TRUNK CENTRE). SRZ= STRUCTURAL ROOT ZONE (MEASURED AS A RADIUS FROM THE TRUNK CENTRE).

No	Botanical Name	Common Name	Height (m)	Width (m)	Health	Structure	Form	Origin	DSH (cm)	NRZ (m)	SRZ (m)	Retention Value	Comments
1	<i>Fraxinus angustifolia</i> 'Raywoodi'	Claret Ash	15	16	Fair	Good	Good	Exotic	60	7.2	2.8	High	Street tree, some large deadwood in canopy.
2	<i>Fraxinus angustifolia</i> 'Raywoodi'	Claret Ash	17	18	Good	Good	Good	Exotic	94	11.3	3.4	High	Street tree.

Appendix 2

Tree Descriptors Age:

Category	Description
Young	Sapling tree and/or recently planted. As a guide a tree up to $\approx$ 5 years of age.
Semi-mature	Tree rapidly increasing in size and yet to achieve expected size in situation.
Maturing	Specimen has reached expected size in situation, with reduced incremental growth.
Over-mature	Tree is senescent and in decline.
Dead	Tree is dead

Health:

Category	Description
Good	Good growth indicators, eg. extension growth. Crown full, with good density, foliage entire with good colour. No or minimal canopy dieback. Minimal or no pathogen damage. Good wound wood development.
Fair	Typical growth indicators, eg. extension growth, leaf size, canopy density for species in location. Tree may have <30% dead wood, or can have minor canopy dieback. Foliage generally with good colour, some discolouration may be present. Minor pathogen damage may be present.
Poor	Poor growth indicators. Tree may have >30% dead wood. Canopy dieback present. Discoloured or distorted leaves, and/or excessive epicormic growth. Pathogen is present and/or stress symptoms that could lead or are leading to decline of tree.

Structure:

Category	Description
Good	Good branch attachment and/or no or minor structural defects. Trunk and scaffold branches sound or minor damage. Good trunk and scaffold branch taper. No branch over extension. No damage to structural roots and/or good buttressing present. No obvious root pests or diseases.
Fair	Typical structure for species. Some minor structural defects and/or minor damage to trunk. Bark missing. Cavities could be present. Minimal or no damage to structural roots.
Poor	Major structural defects and/or trunk damaged and/or missing bark, large cavities, and/or girdling or damaged roots that are problematic.
Hazardous	Tree poses immediate hazard potential that should be rectified as soon as possible.

Form (General shape of the tree):

Category	Description
Good	Canopy full and symmetrical.
Fair	Minor asymmetry or suppression. Considered typical for species in situation.
Poor	Canopy suppressed, major asymmetry. Stump re-growth

Retention Value:

Category	Description
High	In good condition and able to respond to changes in its environment. May be of particular significance to site e.g. environmental or heritage. Tree has potential to be a long-term component of the landscape if managed appropriately. Make every effort to retain
Medium	Tree in fair condition and structure. Tree may have condition or structural problems that would require treatment. Tree could sustain changes to its environment. Tree has potential to be a medium to long-term component of the landscape if managed appropriately. Tree has yet to achieve a significant landscape impact. May be retained or removed depending on design preference
Low	Tree is in poor condition and/or poor structure that can not be rectified. Tree could not sustain dramatic or severe changes, or tree has detrimental effects on environment, eg. woody weed. Recommended for removal.

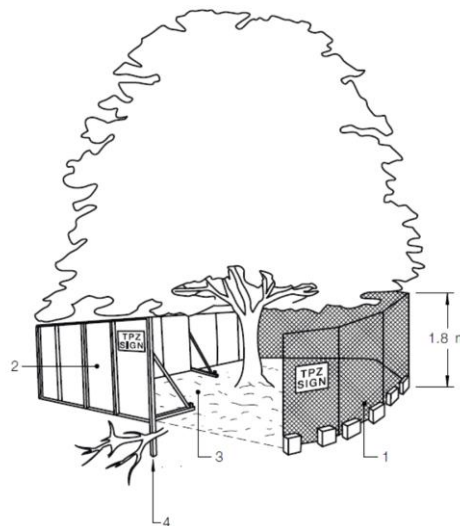
Appendix 3 Tree Protection

The protection and preservation of the existing trees on a development site is to be ensured by the installation of tree protection fencing set at the edge of the tree protection zones. Tree Protection fencing is to be installed prior to the commencement of any site works including demolition, excavation, delivery of materials etc.

The Tree Protection Zones will be determined by the consulting arborist in conjunction with the Site Manager, wherever possible the measures shall conform to AS4970 2025.

The actual fence specifications should be a minimum of 1.2 - 1.5 metres of chain mesh or like fence with 1.8 meter star pickets every 3-4 metres and a top line of high visibility plastic hazard tape. This fence will deter the entry of heavy equipment and vehicles and also the entry of workers and/or the public into the Tree Protection Zone. The tree protection zone shall be clearly signed on all visible sides "Tree Protection Zone – No entry without permission from site manager"

Table 1 Protection Fencing



LEGEND:

- 1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
- 2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
- 3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
- 4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

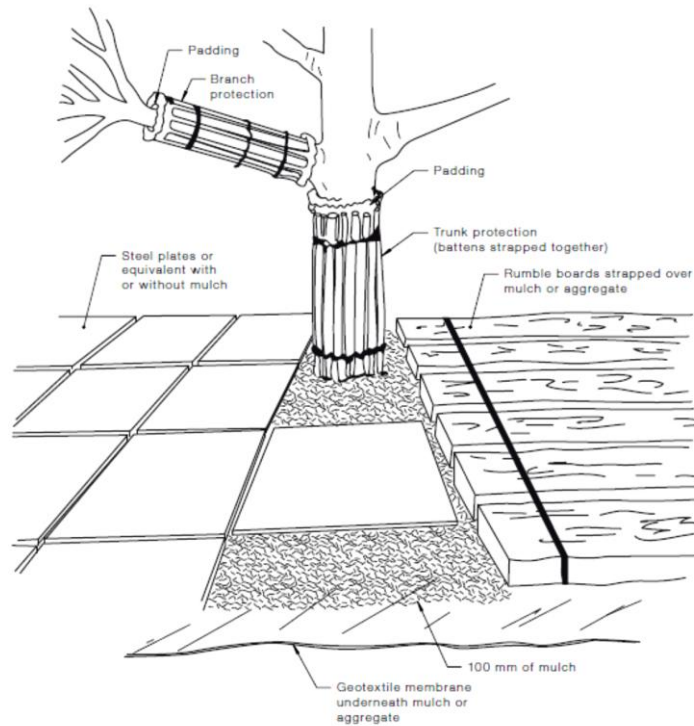
These fences should only be removed or shifted by the consent of the Responsible Authority.

The area inside this Tree Protection Zone should be mulched with a covering of approximately 75mm of woodchip mulch or like material.

If temporary access is required through a Tree Protection Zone this may be carried out using sheets of heavy plywood or like protection but should not be considered for long term requirements (see table 2).

Appendix 3 Tree Protection

Table 2. Protection of tree during temporary access arrangement.



The following are guidelines that must be implemented to minimise the impact of the proposed construction works on the existing trees.

- The Tree Protection Zone is fenced and clearly marked at all times (according to the specification above).
- The consultant arborist is on-site to supervise all excavation works within the TPZ. This is more paramount if substantial roots (i.e. > 40 mm Ø) are encountered and may require pruning. Inspection will need to take place by a qualified arborist to ascertain impact on the trees and recommend follow up works if required.
- A layer of organic mulch (woodchips) to a depth of 80mm (no deeper) should be placed over all root systems (not just in the Tree Protection Zones) of trees which are to be retained to assist with moisture retention and to reduce the impact of compaction. This is particularly important where there will be constant construction vehicle traffic.
- No persons, vehicles or machinery are to enter the Tree Protection Zone without the consent of the consulting arborist or site manager.
- Any underground service installations should be bored and utility authorities should common trench where possible.
- No fuel, oil dumps or chemicals shall be allowed in or stored on the Tree Protection Zone and the servicing and re-fuelling of equipment and vehicles should be carried out away from the root zones.
- No storage of material, equipment or temporary building should take place over the Tree Protection Zone of any tree.

Appendix 3 Tree Protection

- Nothing whatsoever should be attached to any tree including temporary services wires, nails, screws or any other fixing device.
- Supplementary watering should be provided to all trees through any dry periods during and after the construction process.
- Any pruning that is required must be carried out by trained and competent arborist who has a thorough knowledge of tree physiology and pruning methods and carry out pruning to the Australian Standard – AS 4373 – 2007 Pruning of Amenity Trees.
- All root excavation should be carried out by hand digging or with the use of 'Air-Excavation' techniques, and roots should be severed by saw cutting or with a sharp axe and not with a Backhoe or any machinery or blunt instrument.

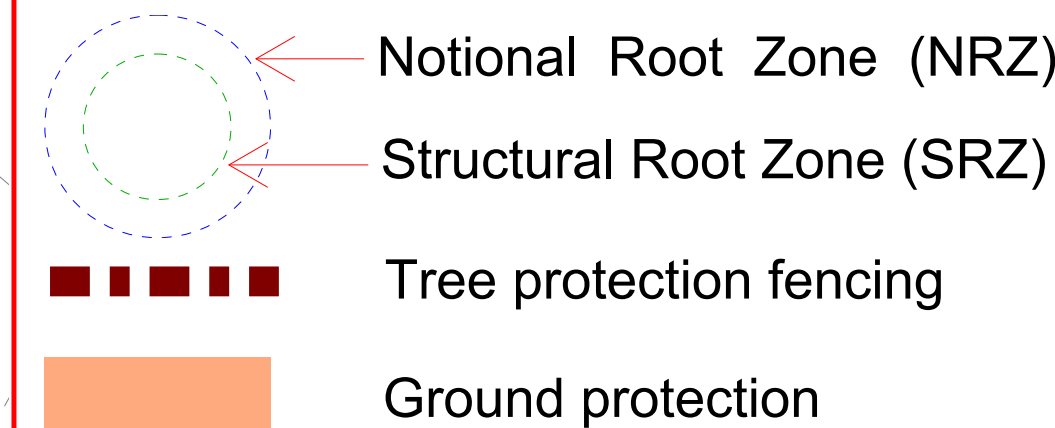
REFER TO SITE ANALYSIS DOCUMENTS FOR NEIGHBOURING DWELLING DETAILS. LANDSCAPE PLAN TO BE PROVIDED TO CERTIFIED LANDSCAPE ARCHITECT TO SHOW PLANT SCHEDULE AND LAYOUTS.

ADJOINING WINDOW LEGEND

HW ADJOINING HABITAT WINDOW
DW ADJOINING DORMER WINDOW-COMBINATION
W ADJOINING WINDOW
NHW NON-HABITAT WINDOW

APPENDIX 4

LEGEND



Tree Protection Fencing and Ground Protection Defines The Extent of the Tree Protection Zone

NOTES:

TOWN PLANNING DRAWINGS ARE TO BE READ AS A WHOLE. NOTES ONLY INCLUDED ON AN INDIVIDUAL PAGE ARE STILL REQUIRED BY THE WHOLE PROPOSAL.

ELECTRICITY COMPANY CONNECTIONS TO THE PROPOSED DWELLING/S ARE TO BE PROVIDED UNDERGROUND.

ALL STORM WATER INFRASTRUCTURE AS REQUIRED BY CONDITIONS OF THE PLANNING PERMIT ARE TO BE LOCATED WITHIN THE DRIVEWAY AND NOT IN THE AREAS SET ASIDE FOR LANDSCAPING.

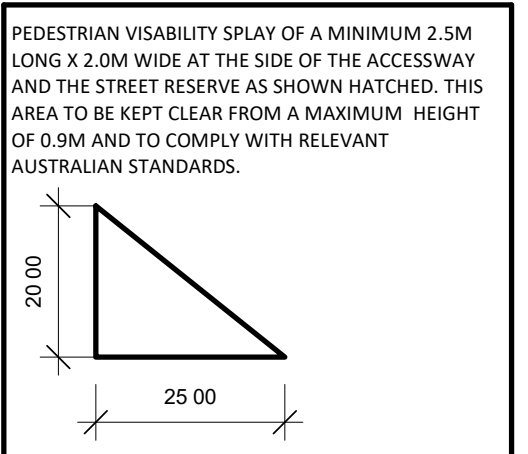
ALFRESCO/DECK
ANY PROPOSED EXTERNAL LIVING AREAS SUCH AS ALFRESCO OR DECKING FOR EACH DWELLING IS NOT TO BE FULLY ENCLOSED AT ANY TIME. SIDE AND/OR REAR SECTIONS MUST BE LEFT OPEN TO PRIVATE OPEN SPACE.

TREE PROTECTION ZONE (TPZ) - GENERAL NOTE

ALL EXISTING STREET TREES AND NEIGHBOURING TREES POTENTIALLY AFFECTED BY THE PROPOSED WORKS ARE TO BE PROTECTED IN ACCORDANCE WITH AS 4970-2009 - PROTECTION OF TREES ON DEVELOPMENT SITES.

TREE PROTECTION ZONES (TPZ), WHERE APPLICABLE, ARE TO BE ADEQUATELY FENCED PRIOR TO THE COMMENCEMENT OF ANY SITE WORKS, INCLUDING DEMOLITION, EXCAVATION AND CONSTRUCTION, AND ARE TO REMAIN IN PLACE FOR THE DURATION OF THE WORKS.

ANY EXCAVATION OR WORKS WITHIN A TPZ ARE TO BE MINIMISED AND, WHERE REQUIRED, MANAGED AND SUPERVISED BY A SUITABLY QUALIFIED AND EXPERIENCED ARBORIST, WITH ALL ROOT PRUNING TO BE CARRIED OUT IN ACCORDANCE WITH AS 4373-2007 - PRUNING OF AMENITY TREES.



IMPORTANT NOTE
NOTE: IT IS THE OWNER/BUILDERS RESPONSIBILITY TO ENSURE THAT THIS ARCHITECTURAL DRAWING IS READ IN CONJUNCTION & CONFORMS WITH ENDORSED PLANNING PERMIT DOCUMENTS AND CONDITIONS.
*DO NOT SCALE THIS DRAWING
*FIGURED DIMENSIONS TO TAKE PRECEDENCE OVER SCALE.
BUILDERS TO CONFIRM DIMENSIONS ON SITE PRIOR TO COMMENCEMENT
SITE & FLOOR LEVELS TO BE CONFIRMED ON SITE BY BUILDER PRIOR TO COMMENCEMENT OF ANY WORKS.

REV.	DESCRIPTION	ISSUE BY	DATE

	SHEET No.	A106/A119
	JOB No.	20257444
	DRAWN: RM	CHECK: MM
TOWN PLANNING		

PROJECT: PROPOSED UNIT DEVELOPMENT
AT: No. 104-108 Sparks Road, Norlane, VIC, 3214
FOR: Mohit Bansal



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PROPOSED SITE AND FLOOR PLAN - FRONT

1 : 100

PROPOSED UNIT DEVELOPMENT AT No. 104-108 Sparks Road, Norlane, VIC, 3214

APPENDIX 5

City of Greater Geelong, Statutory Planning - Date Received 03.06.2026

TREE 1



TREE 2



Stem Arboriculture Assumptions and Limiting Conditions

1. Any legal description provided to the author is assumed to be correct. Any titles and ownerships to any property are assumed to be correct. No responsibility is assumed for matters outside the consultant's control.
2. The author assumes that any property or project is not in violation of any applicable codes, ordinances, statutes or other local, state or federal government regulations.
3. The author has taken care to obtain all information from reliable sources. All data has been verified insofar as possible; however the author can neither guarantee nor be responsible for the accuracy of the information provided by others not directly under the authors control.
4. The author shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.
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11. All instructions (verbal or written) that define the scope of the report have been included in the report and all documents and other materials that the consultant has been instructed to consider or to take into account in preparing this report have been included or listed within the report.
12. To the authors' knowledge all facts, matter and all assumptions upon which the report proceeds have been stated within the body of the report and all opinion contained within the report have been fully researched and referenced and any such opinion not duly researched is based upon the writers experience and observations.